December 30, 2004

Honorable Philip L. Bartlett II, Senate Chair
Honorable Lawrence Bliss, House Chair
Joint Standing Committee on Utilities and Energy
115 State House Station
Augusta, ME 04333

Re: Report In Response to Letter Dated March 17, 2004, Concerning Expanding High-Speed Internet and Advanced Communications Services Statewide.

Dear Senator Bartlett and Representative Bliss:

The Public Utilities Commission (PUC) provides this response to the Committee's March 17, 2004, letter asking the PUC to study how the State might best promote the goal of expanding reliable, affordable access to high-speed internet and other advanced communication/information technology in rural or unserved areas of the state. In addition, you asked the Commission to "examine the feasibility and cost of the Legislature expanding the Maine School and Library Network (MSLN) program to include rural municipal offices so that all towns have access to advanced information networks in order to enhance public accessibility and the provision of public services." The letter also references LD 1889, Resolve, Directing the Public Utilities Commission to Implement Universal Rural Broadband Internet Access Statewide. As you know, LD 1889 did not pass; the PUC testified in opposition, providing extensive information regarding the expanding availability of broadband internet services in the state.[1]

There are several possibilities for improving Maine's broadband deployment, including providing incentives for DSL, cable providers, and wireless service, and encouraging new technologies such as Broadband over Power Lines (a BPL pilot is being proposed for the Kennebunk area). In general, it is fair to say that market forces are already achieving significant improvement (broadband availability in Maine has, for

[1] The term "broadband" encompasses various technologies that carry voice and information. The term generally means any circuit significantly faster than a dial-up phone line. The FCC considers broadband any service providing transmission speeds in excess of 200 Kbps. The most common broadband technologies are Digital Subscriber Line (DSL) and cable modem service, with fixed and WiFi wireless services becoming more prevalent. DSL is typically provided by telephone utilities, and cable modems by companies that primarily provide television and high-speed internet service.

example, risen substantially just in the past year); but it also seems clear that, for the many rural areas of Maine, market forces alone may be insufficient to achieve full availability and coverage in the near term. We believe, as the Committee does, that "expanding reliable, affordable access to high-speed internet and other advanced communications/information technologies in rural or unserved areas of the state is, as a general matter, an appropriate State goal consistent with State telecommunications policy embodied in Title 35-A, section 7101." [2]

In this letter, we will address the municipal office/MSLN connection question, the current state of broadband availability in Maine, and other states' broadband deployment activities or initiatives. Finally, we will provide recommendations for further action to improve the deployment of broadband in rural areas of Maine.

Maine School and Library Network

Currently the MTEAF pays for approximately 40% of the cost of connecting all Maine schools and libraries to the internet. Federal E-Rate funds pay the remaining 60%. Using the existing MSLN program and its funding mechanism (MTEAF or Maine Telecommunications Education Access Fund) to provide internet access to sites not currently authorized by the Department of Education or the Maine State Library is problematic for two reasons. First, the funding mechanism generates almost exactly the amount of funds necessary to operate the MSLN when combined with the Federal E-Rate. Any expansion would require an increase in the assessment rate. Second, the Federal E-Rate program requirements are very specific regarding eligible sites (certified schools and libraries only). While there are E-Rate rules that may allow an allocation between eligible sites and non-eligible sites, it has been our experience that anything even slightly out of the "ordinary" slows the E-Rate review process dramatically. In light of the E-Rate difficulties, and the current close relationship between the MTEAF and the E-Rate, we are reluctant to recommend any substantial changes to the types of sites supported by the MTEAF.

The state MTEAF statute limits the amount collected to "no more than 0.5% of retail charges for telecommunications services as determined by the commission, excluding interstate tolls or interstate private line service." Currently the Commission assesses the maximum 0.5% surcharge on the in-state revenue of all telecommunications carriers. This includes local service (including the basic monthly charge), enhanced services (e.g., caller id, voice mail), in-state toll, directory assistance,

[2] 35-AM.R.S.A. Section 7101 (4). Information access. The Legislature further declares and finds that computer-based information services and information networks are important economic and educational resources that should be available to all Maine citizens at affordable rates. It is the policy of the State that affordable access to those information services that require a computer and rely on the use of the telecommunications network should be made available in all communities of the State without regard to geographic location.

cell phone service, paging service, and inside wire maintenance. This produces approximately $3 million per year, which with the federal E-Rate covers the cost of Internet connections and ISP service for all schools and libraries. If MTEAF were used for additional services or sites, the assessment would have to be increased.

Another reason to be cautious about expanding the services funded by the MTEAF is that the increased use of VOIP (Voice Over Internet Protocol) for telephone service raises questions about the future sustainability of the revenue levels generated by the current assessment rate. To elaborate, the MTEAF statute requires the Commission to periodically examine services provided by other entities such as cable companies and ISPs to determine if they should pay into the MTEAF. To the extent they provide a method of delivering 2-way interactive communication services comparable to telecommunication service their MTEAF assessment "must be based on their retail charges excluding interstate toll and interstate private line services, and may not be related to other services provided by the entity." 35-A M.R.S.A. § 7104-B(8). For example, the Commission levies an MTEAF assessment on Time Warner for its Digital Telephone service. The Commission has not addressed the issue of assessing any Voice over Internet Providers. To the extent that competitive telecommunications service migrates to VOIP, our MTEAF assessment could be negatively impacted unless the assessment method is redesigned. Possible changes to the current assessment method, which uses only the percentage of intrastate revenues, could allow the PUC to also consider alternatives such as companies' use of Maine telephone numbers or the number of instate connections to customers as a basis for the assessment.

Broadband Availability in Maine [3]

Broadband availability in Maine has increased dramatically since the PUC began tracking it in mid-2002. Both the number of towns where broadband is available and the number of providers and varieties of service have increased. While in 2002 the market was dominated by either the local incumbent telephone company (Verizon or one of several independent telephone companies) providing DSL service or cable TV companies providing cable broadband service in a few areas, currently many areas are served by a combination of DSL, cable, Fixed Wireless and WiFi broadband service. Satellite service is also available to anyone with an unobstructed view to the southern sky, but that service is typically more expensive and currently provides somewhat lower quality and bandwidth than other broadband services.

[3] See attachment A, a list of communities in Maine that have some form of broadband access: DSL (Digital Subscriber Line, high-speed service from the phone company provided over copper wires), cable modem service (high-speed service provided by cable TV companies using coax cable), fixed wireless (high-speed service provide generally by point-to-point radio or microwave signals), or WiFi (Wireless Fidelity, a wireless local area network providing "hotspots" with high-speed service).

Verizon provides DSL service from 111 of 140 central offices and 75 of its remote switching terminals. The 111 central offices serve 90% of Verizon's customers (over 565,000 customer access lines), with over 50% of the lines in those offices qualified for DSL service, which means that nearly 50% of Verizon's customers have access to DSL. While this represents significant progress, a substantial proportion of Verizon customers still cannot obtain DSL service. One important factor limiting DSL as a broadband tool for rural Maine is that the service can be provided only within a relatively short distance from each "central office" or "remote terminal."

The actual "take-rate" for DSL in Verizon territory is 7-8% of the qualified lines. There are also some competitive providers that share or "resell" Verizon's equipment to provide alternative services at competitive prices. Thus, while DSL is available in many areas, the vast majority of potential customers have not yet chosen to subscribe.

Verizon serves about 80% of the telephone lines in Maine. Twenty-one "independent" telephone companies (ITCs) provide local service to the other areas (competitive local exchange carriers or CLECs also serve a small percentage in Verizon territory only). Of those companies, all but one offer DSL service to their customers, some with take rates as high as 15% of their customers. The one company that does not provide DSL, The Island Telephone Company, serves Swans, Frenchboro, Isle Au Haut, and Matinicus islands, where even regular telephone service is a challenge. A fixed wireless company does provide broadband service to parts of Matinicus from Owls Head.

DSL is first provided in a telephone company's main central office, which is typically near the center of a community, close to municipal offices, libraries, and schools. Therefore, the majority of municipalities in Maine currently have access to DSL (and often other kinds of) broadband service.

Most of the cable companies in Maine provide cable modem broadband service. The two largest are Time Warner and Adelphia. Adelphia had the biggest increase in coverage this year, adding nearly 70 municipalities since the March 2004 PUC survey. Adelphia provides service in over 200 communities, passing almost 300,000 homes. Time Warner says that it passes over 150,000 homes with 48,000 high-speed internet customers. While the PUC does not have exact data for the cable broadband "take rate," industry sources suggest that it is likely to be in the range of 12 to 13%, on average.

There are at least six fixed wireless providers in Maine and many of them serve some of the more rural areas (e.g. Matinicus Island). We do not have a customer count for the fixed wireless companies. WiFi hotspots are also becoming more prevalent in Maine. Many are for use by customers of hotels and restaurants, but many are open to the public and some have free access. There are hotspots in coffee shops, computer stores, bookstores, and public libraries. The Walk-In Wireless project of the Maine

State Library provides free WiFi access to any library patrons in fifty-nine libraries around the state.

There are a number of independent reports and surveys that indicate average take rates for internet usage, computer ownership, and broadband access. Recent census data from the State Planning Office indicates that there are nearly 550,000 households in Maine (based on census estimates for 2003). An October 2004 Strategic Marketing Service survey found that 68% of Maine households have a computer linked to the internet from home. This is similar to a September 2004 report by the NTIA (National Telecommunications and Information Administration) that found that Maine's internet use as a percent of the state population ranges from 62.2 to 66.7%. The same NTIA report states that 54.6% of US households had internet connections, indicating that Maine is above the national average.

On the other hand, Maine, like rural areas nationally, has a higher percentage of internet access by dial-up compared to broadband access in suburban and urban areas. According to a July 2004 study by the Leichtman Research Group, Maine's total statewide household average broadband penetration is 15.1% compared to the US average of 21.3%. Our cable broadband penetration is 12.3% compared to the US average of 13.5% and our DSL penetration is 2.8% compared to the US average of 7.8%. A December 2004 report from the FCC says that 9% of Maine zip codes do not have a provider of high-speed internet service, while 91% have at least one provider, with 43% of zip codes with three or more providers. Nationally, 6% of zip codes do not have a high-speed provider, 94% have at least one, and 63% of zip codes have three or more providers.

One of the challenges that we will face next year is obtaining more accurate coverage information from the various broadband providers in Maine. Since broadband service (even when provided by incumbent telephone companies or their affiliates) is not regulated by the PUC, we cannot require reports of service deployment or take rates. We expect, however, that our online, interactive map showing broadband availability (to be available on our web page January 2005) should provide the incentive for the providers to supply current and accurate broadband availability information.

Another issue that should be considered in the expansion of broadband is the PUC's recent Line Sharing Notice of Inquiry that begins an investigation into line sharing by incumbent local exchange carriers (i.e. Verizon and the twenty-one independent companies).[4] Line sharing involves the use by a competitive (i.e. non-incumbent) company of the high frequency or non-voice part of the local loop (provided by the incumbent) to provide DSL service. To the extent that line sharing is allowed, more competitive providers would be able to provide service. We currently believe, though the investigation will provide more information and argument on the issue, that the PUC

[4] Notice of Investigation, Investigation Into Line Sharing Pursuant to State Law, Docket Number 2004-809, issued December 9, 2004.

has the authority to order the incumbents to provide wholesale line share. The FCC, however, recently eliminated line sharing as a federal unbundling requirement. In a recent proceeding before the Maine PUC (Docket No. 2002-682), which only covered Verizon's wholesale obligations and not those of the ITCs, one of the preliminary legal issues briefed by the parties was the question of the whether the Commission has authority, under both state and federal law, to order line sharing in Maine. In an Order dated September 3, 2004, we found that we are not preempted from considering whether Verizon must continue to offer line sharing pursuant 35-A M.R.S.A. §§ 1306 and 7101. We also found that the Maine legislature has enunciated a policy objective of providing affordable access to broadband service to as many citizens of the State as possible, regardless of geographic location. We made no findings, indeed, no mention of, the ITCs and any wholesale obligations they might have.

Recognizing that we cannot exercise any state authority we might have in cases where the FCC has specifically preempted that authority pursuant to federal law, we also found that it would be premature to conclude that we had been preempted by the FCC on the line sharing issue without further consideration of both the facts and the law. Thus, we determined that we needed to further explore the specific circumstances in Maine and state law policies and mandates in order to determine whether we should, in fact, exercise our authority under 35-A M.R. S.A. §§ 301, 711, 1306 and 7101 to order line sharing. We also noted the Legislature's directive that all Maine citizens should have access to broadband services and that the issues raised by the CLECs concerning the viability of rural broadband deployment warranted a closer examination.

Broadband Deployment Initiatives In Other States

A recent report by the Alliance for Public Technology, "A Nation of Laboratories," described various state policies, programs, and initiatives to promote access to advanced information technologies. The report indicates that, "[t]o make broadband more widely available, the states have instituted numerous policy approaches, including: State Broadband Authorities/Agencies, Tax Credits, Statewide Networks, Funding Programs, Demand Aggregation Programs, and Public/Private Partnerships." Information gathered from this and similar reports is summarized below:

- Pennsylvania: The Governor recently signed into law a comprehensive telecommunications bill (HB 30) that sets parameters for broadband deployment in the state. Regulatory requirements are determined by the rate at which the local telephone companies deploy broadband, with full deployment required by 2015. The law allows an alternative form of regulation (AFOR) for telephone companies and continues to require network modernization plans. The law also provides incentives for companies that accelerate their broadband implementation. The law provides for funding (paid by telecommunications companies) for an education technology fund, and broadband equipment at discounted rates. The law also sets up a process for the state DECD

(Department of Economic and Community Development) to designate specific areas to go to the head of the deployment queue. The city of Philadelphia is in the process of deploying a citywide wireless mesh network.

- Vermont: The Vermont Broadband Council, with the state Agency of Commerce and Community Development, administers state-funded grants to rural areas to deliver wireless broadband services. The Governor has proposed that within four years, Vermont will have 100% wireless (cellular) coverage and 90% of homes and businesses will have broadband internet access. Montpelier is completing the first phase of a new wireless network in the city. Phase One connects City Hall with other municipal sites. Phase Two will provide high-speed, high-capacity Internet service to local businesses. Phase Three will create a WiFi "hotzone" in the central downtown area for retails shops, small offices, residents and visitors ($375,000 in federal funds have been made available for the Vermont Broadband Council for creating “MonpelierNet”). Vermont also prepares and regularly updates a comprehensive Telecommunications Plan to identify and provide guidance for dealing with long-term telecommunications issues. The Vermont Telecommunications Plan “provides guidance to state regulators dealing with telecommunications issues before the Public Service Board, and ... provides a framework for community and economic development officials, state government telecommunications managers, and legislators about how to meet state telecommunications goals. The Plan also communicates state priorities and objectives to providers of telephone, data, and cable communications services.”

- Minnesota: The Legislature established by law a “Broadband Access Availability Account” funded by surcharges ($1/month on telecommunications bills) and PUC fines (assessed on carriers for quality of service or other plan/certificate violations). The Account is used to provide grants to assist in the deployment of broadband technology to schools, businesses, and unserved and underserved areas.

- Idaho: The Legislature authorized an income tax credit for the installation of qualifying broadband infrastructure.

- Louisiana: The Legislature recently created the Broadband Advisory Council to serve as the central broadband policy planning body to develop a statewide plan to encourage the provisioning of cost-effective broadband access, focusing primarily on the state’s rural and underserved areas.

- California: The Corporation for Education Network Initiatives in California (CENIC) was awarded a state grant to focus on providing “one-gigabit” broadband to all Californians by 2010. Economic development and increasing the state GNP are the lead incentives.

- Municipalities: Wireless internet access (WiFi, WiMax) has been deployed in several municipal initiatives. Last year, Scottsburg, Indiana deployed a municipal-owned broadband wireless network when the city realized that it would lose a significant number of jobs without broadband access. In Southern California, 18 tribal communities in San Diego County have banded together to create the Southern California Tribal Digital Village. They set up 200 miles of point-to-point and point-to-multipoint links that provide wireless broadband internet access to tribal offices, libraries, and schools. Hermosa Beach, California (pop. 21,000) launched the first phase of its citywide free wireless broadband service on August 11, 2004. The initial area of connectivity covers approximately 35% of the city around downtown, City Hall, and adjacent neighborhoods.

  The FCC's Fourth Section 706 (of the Telecommunications Act of 1996) Report to Congress: Availability of Advanced Telecommunications Capability in the United States, observed that "[a]lthough the Wireless Internet Service Provider (WISP) market is still in its infancy, according to industry estimates, approximately 2,000 to 3,000 WISPs are serving the nation's rural areas from the Catskill Mountains in New York to Coffman Cove, Alaska. WISPs are using a wide range of both licensed and license-exempt diverse technologies to provide broadband service to rural consumers and businesses. For instance, Odessa Office Equipment, a rural-office-supply company-turned WISP based in Odessa, Washington, serves thousands of customers in a 3,000-square-mile area of northwestern Washington via 2 megabit WiFi technology using barns, streetlight poles and houses as wireless tower sites. Additionally, GCI, a telecommunications and cable services provider in Alaska, provides its WISP services to rural customers at prices comparable to urban services.

  The municipal initiatives are funded from a variety of sources, including city funds, state and federal grants, cooperative arrangements with utility companies, and revenue generated from the users.

Funding Sources

The USDA (US Department of Agriculture) Rural Broadband Access Loan and Loan Guarantee Program provides loans and loan guarantees for the construction, improvement, and acquisition of facilities and equipment for broadband service in eligible rural communities. Priority is given to applications to serve areas where no residential broadband service currently exists. These loans are intended to facilitate deployment of new and innovative technologies to provide two-way data transmission of 200 kbps or more, in communities with populations up to 20,000.

The program usually allocates funds by state (based on the number of communities with a population of 2,500 or less, of which there are about 400 in Maine),

but due to the failure of utilities and communities to take advantage of the program, the state allocation process has been suspended. For 2004, $2.2 billion was allocated and just $93 million approved. A recent list of communities with approved and pending loan applications did not have a single Maine site.

The USDA RUS (Rural Utilities Service) also has a grant program, the Community Connect Grant Program, available to single communities or rural companies only. The PUC inquired about the possibility of a state agency administering a grant. According to RUS, that is not allowed in the current program, but is being considered for future efforts. The state contact for the RUS (in Bangor) offered to come to Augusta, with the RUS regional administrator, to fully explain the broadband program.

The Rural Broadband Initiative (RBI), a non-profit group in Wilton, Maine, has contacted the RUS regional administrator about funding for their proposed fixed wireless system in the Wilton/Farmington area. The RBI's recent survey conclusion stated: "The Maine Public Utilities Commission, the state legislature, and the governor's office must do what they can to increase incentives and lower the cost of capital investment in broadband-related infrastructure. Regulations may have to be revised, and partnerships between government, the nonprofit sector, and private business must be fostered and strengthened."

Three bills were introduced in the U.S. Senate last year that collectively would have set aside $175 million from the federal budget to promote broadband and other new telecommunications services. The proposed Broadband Expansion Grant Initiative of 2004 (S. 2578) would authorize the appropriation of $100 million in fiscal 2005, "and such sums as are necessary for each fiscal year thereafter," to be used as grants or loan guarantees to facilitate private-sector deployment of broadband telecom networks to underserved rural areas. Several other bills either sponsored or cosponsored by Sen. Olympia Snowe would provide tax credits to help develop broadband access.

Recommendations

Underlying all discussion about the State acting to promote broadband access is the fact that the technologies that can be used to transmit voice and information are changing rapidly. Internet providers are carrying voice; internet is being carried by electrical lines and by wireless technologies. Any technology-specific solution that today is considered optimal for the State may well be obsolete tomorrow. While we continue to believe that the market, and not the PUC or other public officials, should determine the "winning" technologies for broadband, we also believe that there are roles for the State in promoting and providing incentives for technology changes that benefit the more rural areas of the state.

1. The Legislature should make explicit and possibly expand the authority of the Commission under state law to order line sharing and to require that Verizon and the other local telephone companies make available for reasonable

compensation other elements of their networks to competitive carriers seeking to use those facilities to provide broadband service.

2. If the Legislature wishes to take action to supplement market-based broadband deployment activity, we recommend that a broadband deployment working group be formed, sponsored by the Governor's Office, SPO, DECD, or the Legislature, to define the problem and seek solutions. Members of the group could include representatives of the relevant state agencies (BIS, SPO, DECD, DECD Office of Innovation, MTI, PUC, OPA, etc.), [5] service providers (ISPs, telecommunications companies, cable companies, wireless companies, etc.) and interested or affected businesses and individuals. A permanent advisory council like those used in some other states should also be considered.

3. It appears that a primary impediment to obtaining funding or technology information, either by companies or municipalities, is the lack of a centralized source of information. The Maine Municipal Association, DECD, PUC, or similar organizations, could be a resource for information on developing technologies like WiFi and WiMax networking, or BPL. Having centralized information about funding sources, like federal grants and loans, would provide a valuable service to the smaller towns and businesses that do not have the resources to be on the lookout for opportunities.

4. Broadband service providers could be urged (or given incentives) to give reduced rates in Pine Tree Zones. Similarly, wireless networks could be encouraged to connect to the high bandwidth service points and provide WiFi access to businesses or business parks that locate in the PTZs.[6]

5. The State could adopt policies that standardize and expedite rights-of-way permitting and limit the fees imposed for ROW access. The difficulty in obtaining such rights of way is sometimes identified as a barrier to broadband deployment.

6. The State could encourage more rapid broadband deployment by funding the "laptop" program at levels sufficient to bring high-speed computers to students in all high schools. The logic of this approach is that, as students see the capabilities of high-speed connections, they and their parents will purchase what is available, and encourage expansion of availability.

7. The Legislature should also consider developing a comprehensive telecommunications plan (similar to the plan implemented in Vermont) and update it on a regular basis.

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[5] Bureau of Information Services, State Planning Office, Department of Economic and Community Development, Maine Technology Institute, Public Utilities Commission, Office of the Public Advocate.

[6] Customers in Pine Tree Zones may receive reduced electric delivery rates.

Sincerely,

Maine Public Utilities Commission
Thomas L. Welch, Chairman
Stephen L. Diamond, Commissioner
Sharon M. Reishus, Commissioner

cc: Utilities and Energy Committee Members
Jon Clark, Legislative Analyst

Attachments: A – List of Municipalities with Broadband services
B – Partial List of Known Broadband Providers